

ABSTRACT

PT Pertamina Refinery Unit VI Balongan through ARHDM units perform processing residues containing metal Nickel (Ni), Vanadium (V), and Carbon (C) in high quantities into Hydrometallized Atmospheric Residue containing metal Nickel (Ni), Vanadium (V), and Carbon (C) with a smaller amount. ARHDM unit operates for 24 hours every day and able to produce feed for 58,000 BPSD. Process that occurs in the unit ARHDM performed using a catalyst and hydrogen at high temperature and pressure. This process can bring risk or damage to the safety of operators or environment so proper maintenance strategy is needed. Existing maintenance strategy is not effective and efficient based on a high frequency of damage due to maintenance activities do not conform to the characteristics of the components and Turn Around that requires substantial maintenance costs.

By using Reliability Centered Maintenance to design optimal treatment activities that has purposed at generating effective and efficient activities maintenance. Effectiveness of maintenance activities is based on conformity with the characteristics of damage while efficiency is based on the total cost of treatment incurred . Calculation of spare parts is done to support preventive maintenance activities effectively and efficiently to ensure the availability of spare parts in accordance with its life span or before the component fails . Spare parts are divided into two types according the action to be taken to its components, which is repairable spare parts and non-repairable spare parts.

Based on the results of data processing, 5 critical subsystems selected from 21 subsystems on ARHDM unit, which are Feed Heating System, HHPS Temperature Control System, Water Injection, Cold Quench Gas Recycle, and Catalyst System. This critical subsystems which became the object of research . Treatment for this type of activity is obtained Scheduled Task On Condition as many as 28 maintenance tasks, Restoration Scheduled Task as many as 16 maintenance tasks, and Scheduled Task Discard as many as 9 maintenance tasks with maintenance time intervals from 1.368 hours to 10.033 hours. After getting maintenance time interval, it can determine the total cost of maintenance that will be issued per year, which is Rp 921.876.780,29. The number of components for repairable spare parts as many as 4 spare parts and non-repairable spare parts as many as 24 components, with spare parts needed as many as 1 to 23 pieces.

Keywords: Reliability Centered Maintenance, Spare Parts, Preventive Maintenance